



**Oregon Department of Forestry  
Certified Burn Manager**

**Obtaining Weather  
Forecasts**

COLLEGE OF FORESTRY

Oregon State University

Presentation developed by John Punches

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**We need weather info before, during & after**

- Before we burn
  - Anticipate likely conditions to help us develop reasonable plan
  - Anticipate fuel moisture conditions
  - Identify acceptable burn window
- During the burn
  - How conditions change throughout day
  - Notice of hazards (thunderstorms, changing wind, etc.)
- After the burn
  - How much mop-up
  - How much patrol
  - When to declare fire out



Image: earth.nullschool.net

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**Weather information sources**

- Remote Automated Weather Stations (RAWS)
- PRISM climate data
- National Weather Service forecasts
- SPOT weather forecasts
- Weather apps (e.g. Windy)

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**RAWS**

- Approx 2200 located throughout US
- Typically owned by wildland fire agencies
- Feeds data to agencies and to weather services
- Wind speed and direction, air temp, RH, wet bulb, dew point, precipitation
- May include fuel moisture (10-hr) and temp
- Variety of table, summaries, charts – both current and historic



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**RAWS** <https://raws.dri.edu/>

**RAWS USA Climate Archive**

Station Maps and Data | Summaries | Previous | Documents | Related Links | Specials

Best viewed with 800 X 600 or greater screen resolution.

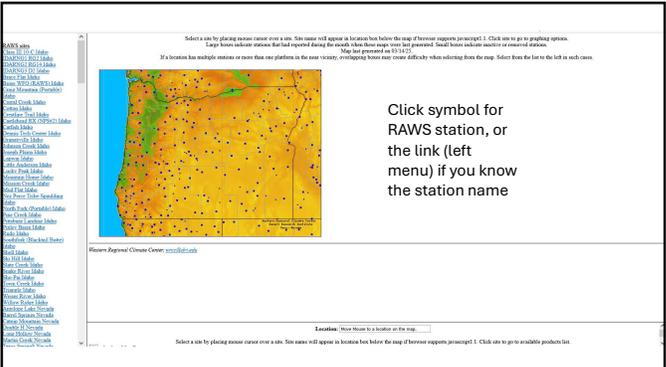
State Selection Map



Click on map to drill down to your location

NOTE:  
The following pages are still under construction.  
Stations and historical data are still being added to the archive.  
Several products are also being developed and will be added as they are completed.

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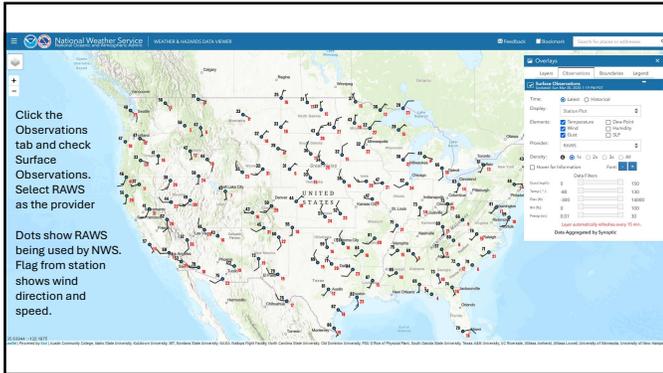


Select a site by placing mouse cursor over a site. Site name will appear as location box below the map if browser supports javascript! 1. Click site to go to graphics screen. Large boxes indicate stations that had reported during the month when they were very hot, persistent. Small boxes indicate inactive or non-reporting stations. 2. Click site to go to graphics screen. 3. If a location has multiple stations or more than one problem in the most recent month, overlapping boxes may create difficulty when selecting from the map. Select from the list in such cases.

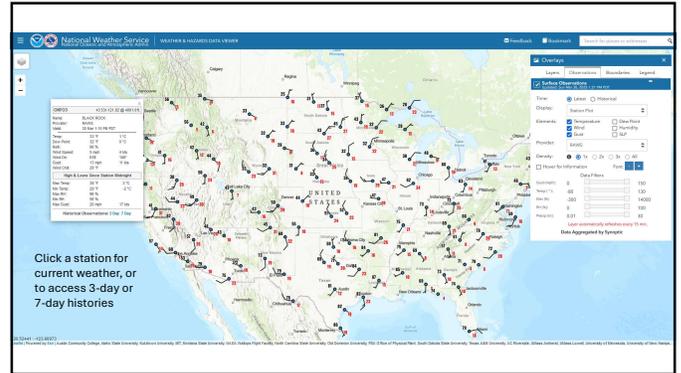
Click symbol for RAWS station, or the link (left menu) if you know the station name

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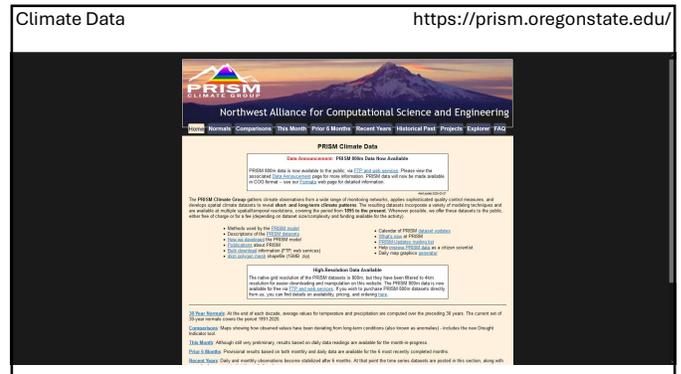
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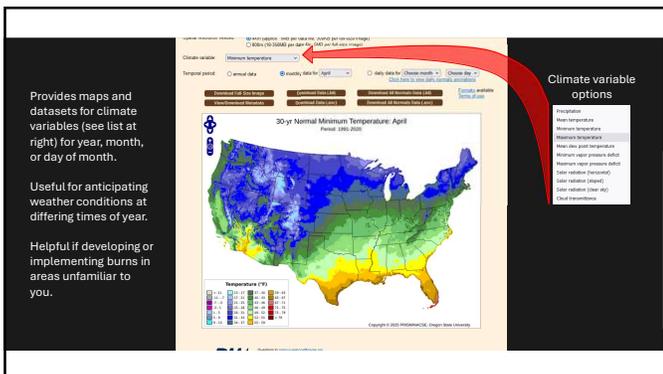
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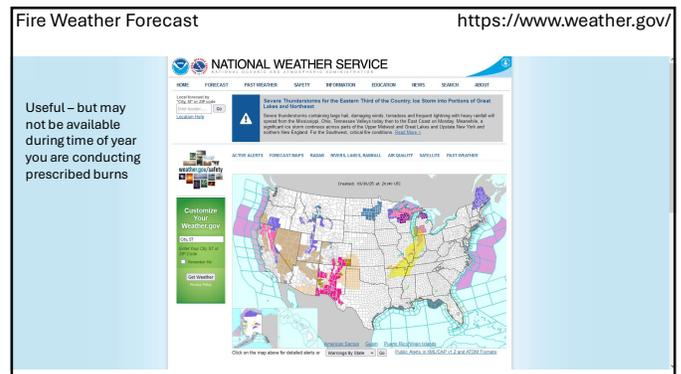
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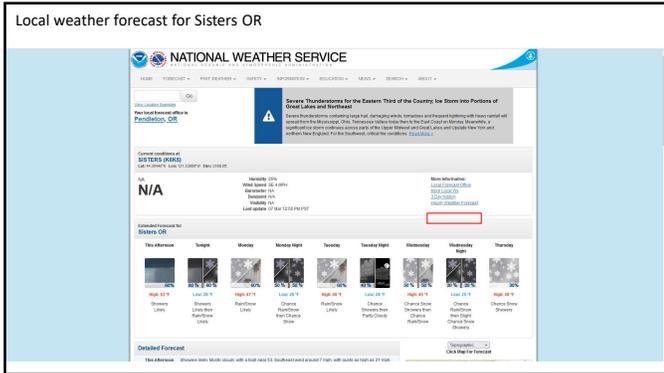


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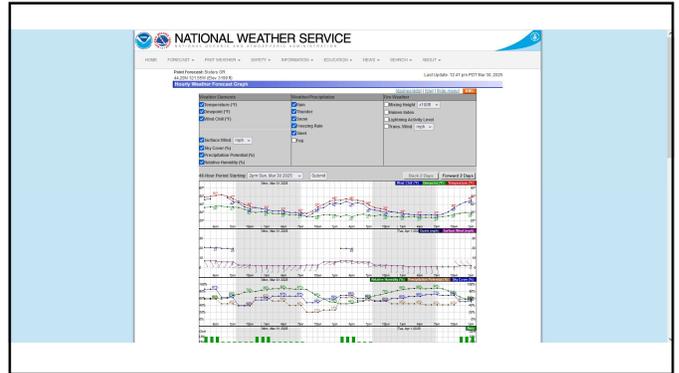


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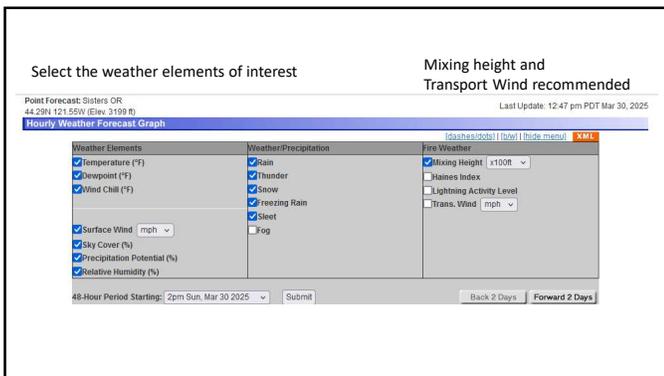




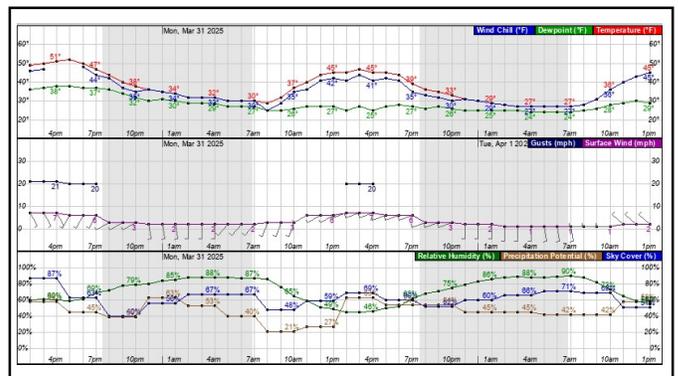
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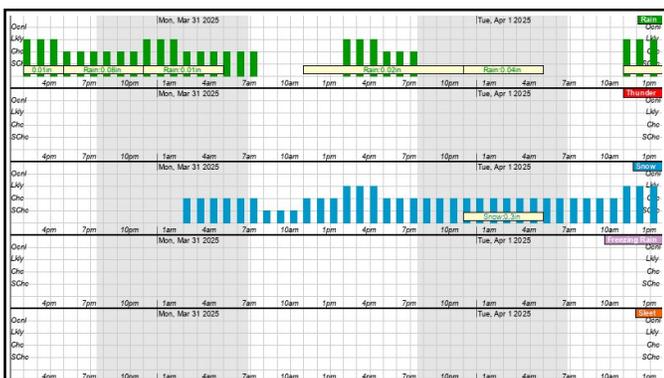
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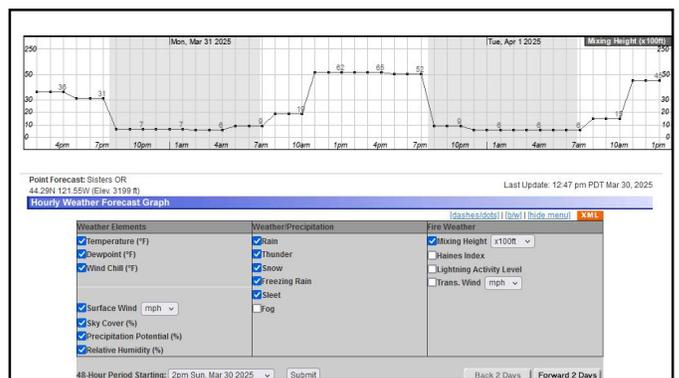
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Spot Weather Forecast <https://spot.weather.gov/>

Custom forecast for a specific location.

Technically – only available by agency request.

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Spot Forecast Request

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Spot Forecast Request

NWS Spot Forecast

Warner Wetlands Project  
Prescribed Fire

Forecast Start Time: 3/29/25, 6:02 AM PDT  
Request Time: 3/29/25, 5:09 AM PDT  
Deliver Time: 3/29/25, 6:00 AM PDT  
Forecast Complete At: 3/29/25, 5:28 AM PDT

Requested By: BLM  
Contact:  
Phone:  
Fax:

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Spot Forecast for Warner Wetlands Project...BLM  
National Weather Service MEDFORD OR  
519 AM PDT Sat Mar 29 2025

Forecast is based on ignition time of 0602 PDT on March 29.  
If conditions become unrepresentative...contact the National Weather Service.

DISCUSSION...Cooler, breezy and showery weather is expected into this evening. Then showers will gradually diminish tonight. Snow levels will lower to 3000 to 4000 Feet tonight. Most hours and locations will be dry Saturday into Sunday morning, then a front will move into the area Sunday afternoon with more precipitation. The active pattern will last into the first part of next week.

REST OF TODAY...

Sky/weather.....Sunny.  
Chance of lightning 0.  
Max temperature.....45 to 48 degrees.  
Min humidity.....32 to 36 percent.  
Eye level winds.....North at 2 to 4 mph in the morning becoming west at 1 to 3 mph.  
Wind (20 ft).....North at 3 to 5 mph in the morning becoming west at 2 to 4 mph.  
Mixing height.....5180 Ft AGL.  
Transport winds.....Northwest at 5 to 7 mph.  
CR.....0 percent.

TONIGHT...

Sky/weather.....Mostly clear becoming mostly cloudy.  
Chance of lightning 0.  
Min temperature.....30 to 33 degrees.  
Max humidity.....63 to 66 percent.  
Eye level winds.....West at 1 to 3 mph becoming southwest at 1 to 3 mph.  
Wind (20 ft).....West at 3 to 5 mph becoming southwest at 3 to 5 mph.  
Mixing height.....1200 Ft AGL.  
Transport winds.....East at 4 to 6 mph.  
CR.....0 percent.

SUNDAY...

Sky/weather.....Mostly cloudy. Chances of light rain or snow showers in the afternoon and evening.  
Chance of lightning 0.  
Max temperature.....48 to 52 degrees.  
Min humidity.....40 to 44 percent.  
Eye level winds.....Southwest at 1 to 3 mph becoming southwest at 9 to 12 mph with afternoon gusts up to 20 mph.  
Wind (20 ft).....Southwest at 3 to 5 mph becoming southwest at 18 to 20 mph with afternoon gusts up to 30 mph.  
Mixing height.....4600 Ft AGL.  
Transport winds.....South at 22 to 25 mph.  
CR.....1 percent.

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Spot Forecast Request

Step 1: Establish incident location using A or B below.

A. Set request location using nearest street address.  
Note 1: Valid entries are street address, zip code, city, state, or latitude & longitude.  
Note 2: Latitude & Longitude will return the nearest street address. For exact latitude & longitude points use Step B entry below.  
Note 3: City, State, and Zip Code will return a geographic centers.

Plot Address

- OR -

B. Set request location using latitude & longitude, USNG, left-click on spot location, or drag the map pointer to spot location below.

Note 1: If the map below does not appear you may enter your decimal Lat/Lon below.  
Note 2: To learn more click the Help! button on your Web Browser.  
Note 3: Latitude & Longitude information should be entered in WGS84/NAD83 coordinates in order to ensure accurate forecast locations.

Decimal Degree Latitude/Longitude  
West longitudes Are Negative. Example: Latitude: 25.6319 longitude: -80.3025.  
(Note: Entered values will update map below)

United States National Grid (USNG)  
Valid for points between 84N and 80S latitude. Requires 13 character grid - 10 meter precision. Example: 18U23488647

Elevation  
Latitude & Longitude value used to determine elevation. If elevation data is in error, changes can be made on the second page of this spot request.

Lat: 0 Plot USNG: 18U23488647  
Lon: 0 Plot USNG: 18U23488647  
Elevation: 0 Plot USNG: 18U23488647

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Spot Forecast Request

West Longitudes Are Negative. Example: Latitude: 25.6319 Longitude: -80.3025.  
(Note: Entered values will update map below)

Valid for points between 84N and 80S latitude. Requires 13 character grid - 10 meter precision. Example: 18U23488647

Latitude & Longitude value used to determine elevation. If elevation data is in error, changes can be made on the second page of this spot request.

Lat: 0 Plot USNG: 18U23488647  
Lon: 0 Plot USNG: 18U23488647  
Elevation: 0 Plot USNG: 18U23488647

Degree, Minute, Seconds

Can accept decimal minutes as an input. Example: 25 deg 19 min 23 sec W

Latitude  
Deg: 0 Min: 0 Sec: 0 South

Longitude  
Deg: 0 Min: 0 Sec: 0 West

Plot Degree, Minute, Seconds

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**Spot Forecast Request**

New Request Monitor Calendar

Step 2: Select the incident type for the request.

**Fire**  
 Wildfire  Prescribed Fire

**Marine**  
 Marine

**Hazardous Materials**  
 HAZMAT Inland Waterway  HAZMAT Land  HAZMAT Marine

**Search and Rescue**  
 SAR Inland Waterway  SAR Land  SAR Marine

**Other**  
 Volcano, Earthquake, Special Event

After setting your location and incident type above, click on the 'Generate A Spot Request' button below to proceed to the SPOT request form.

[Generate Spot Request](#)

Please enter a valid location and make sure it plots correctly on the map.

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**Spot Forecast Request**

New Request Monitor Calendar

Spot Forecast Incident Type: **Prescribed Fire**

WFO: **PDT** State: **OR**

**Contact Information**

For NWS Spot forecast policy, see section 4.0 in NWS Instruction 10-401 at NWS Directives System

Project Name \* Requesting Agency \* Requesting Official \* Email Address \*

A minimum of 5 characters are required. A minimum of 2 characters are required. A minimum of 2 characters are required. A valid email is required.

Phone Number \* Ext. Contact Person Fax Number

A valid phone number is required.

**Reason for Prescribed Fire Spot Request \***

- Under the Interagency Agreement for Meteorological Services (IFCS, BLM, NPS, USFS, BIA)
- State, tribal or local fire agency working in coordination with a federal participant in the Interagency Agreement for Meteorological Services.
- Essential to public safety, e.g. due to the proximity of population centers or critical infrastructure.

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**Spot Forecast Request**

New Request Monitor Calendar

**Location (WGS84 / NAD83 preferred)**

Latitude Longitude 7.5' Quad Elevation Top Elevation Bottom

45.5674 -117.2615 4129 Feet 4129 Feet

**Fire Weather Supplemental Information**

Drainage Size (square acre) Aspect\* Fuel Type\* Shattering\*

0 Enter an aspect direction A fuel type is required Select a shattering type

**Forecast Information**

**START FORECAST** The first date of the forecast Date\* 03/30/2025 Time\* 15:00

**DELIVER FORECAST** When to deliver the forecast Date\* 03/30/2025 Time\* 15:00

**DELIVER AS SOON AS POSSIBLE** TIME ZONE\* American/Los\_Angeles (PDT)

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**Spot Forecast Request**

New Request Monitor Calendar

**FORECAST FORMAT\***

**TABULAR TIME TABLE INTERVAL (required) \***

Sun Mar 30 Day	Sun Mar 30 Night	Mon Mar 31 Day	Select All Periods
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sky/Weather <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Humidity <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chance of Wetting Rain (>0.10) <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wind (20 FT) <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ridge Top Winds <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mixing Height <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Transport Winds <input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chance of Thunder <input type="checkbox"/>

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**Spot Forecast Request**

New Request Monitor Calendar

**NOAA Hysplit Model**

Would you like to include a run of the Hysplit Model with this request? If so please verify your email address above as this will be used to send you the Hysplit model run.  
 Yes - Trajectory Output  
 No

Remarks

**Future Forecasts**

Would you like to receive future forecasts for this request?  
 If the answer is yes, please coordinate with the local NWS office to ensure they are aware of the request for the future forecast.  
 No  
 Yes

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**Spot Forecast Request**

New Request Monitor Calendar

**Site\***

Site*	Site*	Site*
Date: 03/30/2025 Time (Local): 02:59 PM	Date: 03/30/2025 Time (Local): 02:59 PM	Date: 03/30/2025 Time (Local): 02:59 PM
Weather: None	Weather: None	Weather: None
Sky: Clear Visibility: >10 Miles	Sky: Clear Visibility: >10 Miles	Sky: Clear Visibility: >10 Miles
Wind Direction: VRBL Wind Speed: mph	Wind Direction: VRBL Wind Speed: mph	Wind Direction: VRBL Wind Speed: mph
Temperature: Wet Bulb Temp: °F	Temperature: Wet Bulb Temp: °F	Temperature: Wet Bulb Temp: °F
Relative Humidity: Dew Point: °F	Relative Humidity: Dew Point: °F	Relative Humidity: Dew Point: °F
Elevation: Sig Wave Height: Feet	Elevation: Sig Wave Height: Feet	Elevation: Sig Wave Height: Feet
Remarks:	Remarks:	Remarks:

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### Spot Forecast Request

NWS Home News Organization

New Request Monitor Calendar

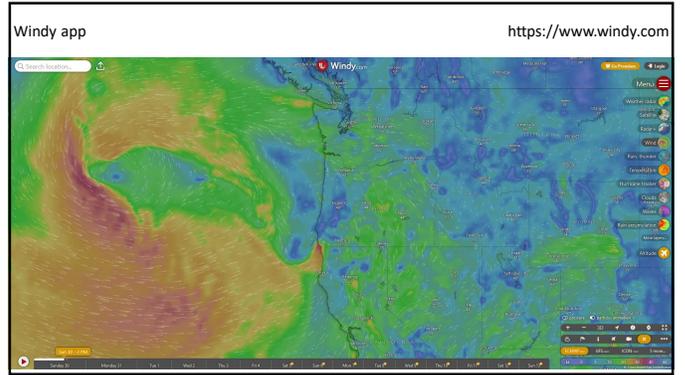
Relative Humidity % Dew Point °F  
Elevation Feet Sig Wave Height Feet  
Remarks

Relative Humidity % Dew Point °F  
Elevation Feet Sig Wave Height Feet  
Remarks

Clicking the button below will create a one time spot request.  
**This spot request is for official government use only and must be allowed under NWSI 10-401.**  
 This request will be processed and a forecast will be generated by the servicing forecast office at the time they receive the spot request. At any time until the expiration of this forecast, another immediate spot request may be generated off of the original request.  
 Additionally, the immediate spot request can be converted into a scheduled request by contacting your servicing forecast office.

Submit Request Cancel

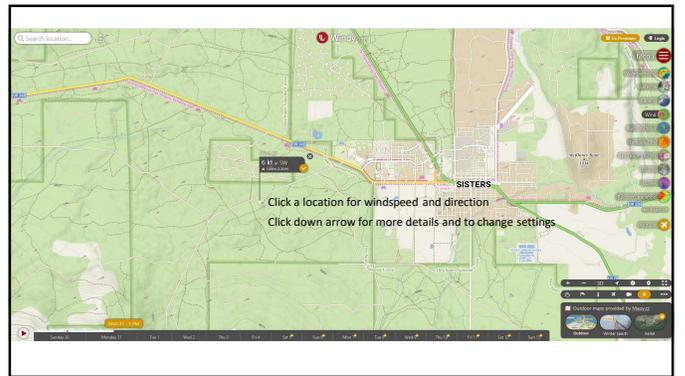
43



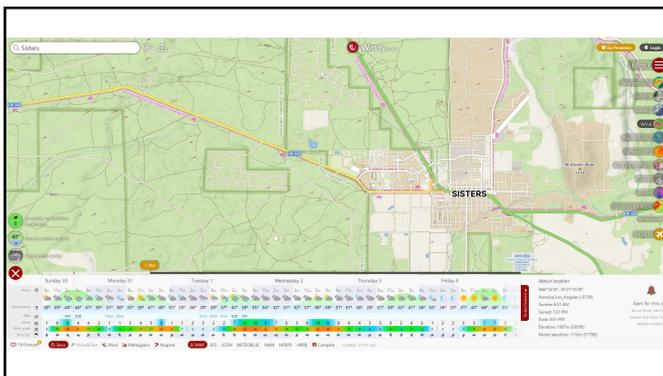
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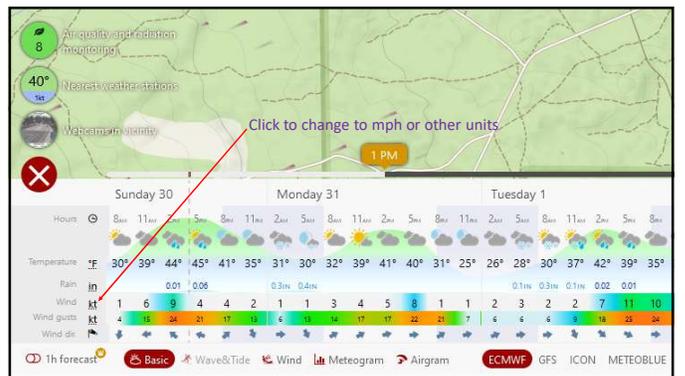
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### Role of Climate Information

- Range of likely conditions
- Helps CBMs assess likelihood of having feasible burn window

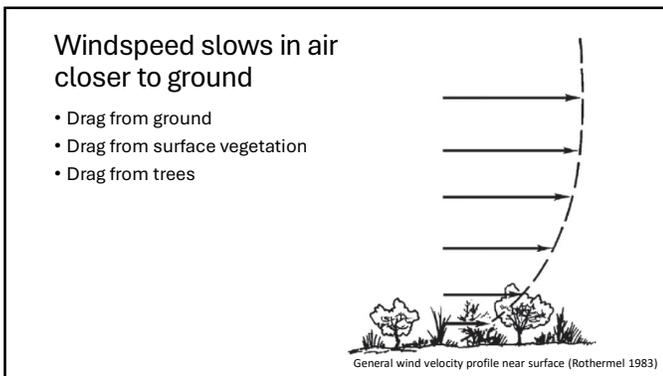
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### Role of weather information

- Likelihood of burn day conditions being in prescription
- Likelihood burn day conditions will go out of prescription
- Location of test fire
- Anticipated smoke dispersal
- Potential for negative weather influences (fronts, thunderstorms)
- Potential post-burn implications (heat, RH, wind) on mop-up and patrol

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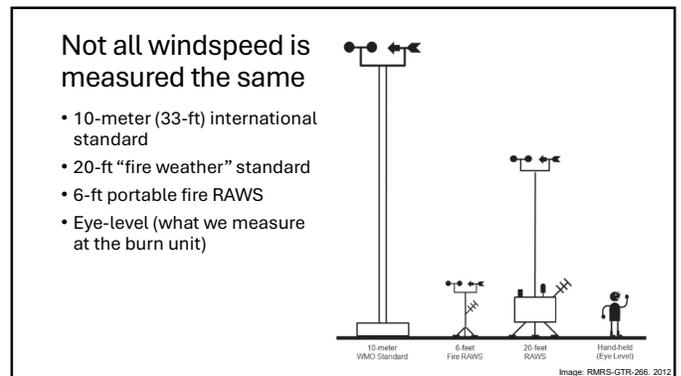


### Windspeed slows in air closer to ground

- Drag from ground
- Drag from surface vegetation
- Drag from trees

General wind velocity profile near surface (Rothermel 1983)

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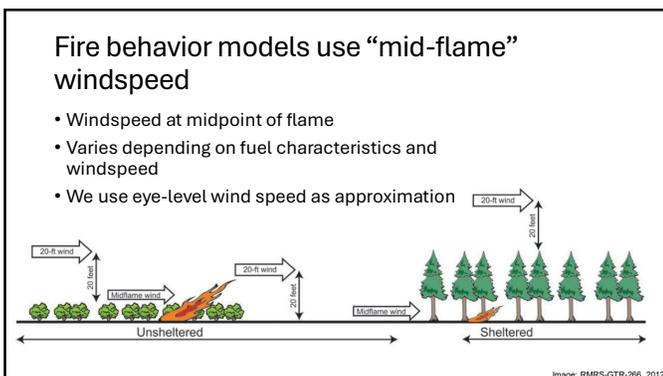


### Not all windspeed is measured the same

- 10-meter (33-ft) international standard
- 20-ft “fire weather” standard
- 6-ft portable fire RAWS
- Eye-level (what we measure at the burn unit)

Image: RMRS-GTR-266, 2012

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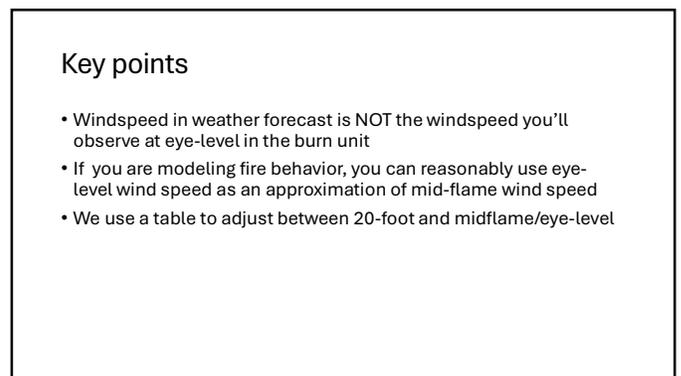


### Fire behavior models use “mid-flame” windspeed

- Windspeed at midpoint of flame
- Varies depending on fuel characteristics and windspeed
- We use eye-level wind speed as approximation

Image: RMRS-GTR-266, 2012

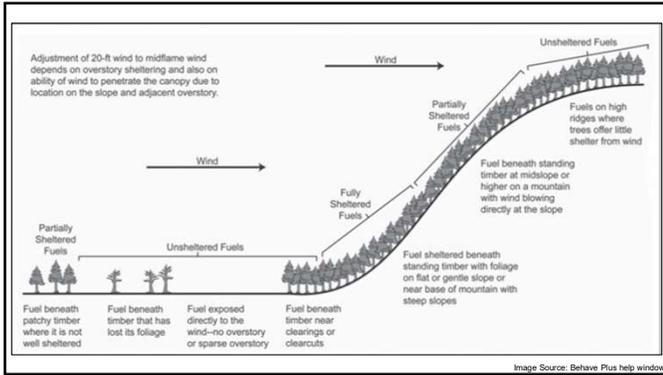
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### Key points

- Windspeed in weather forecast is NOT the windspeed you’ll observe at eye-level in the burn unit
- If you are modeling fire behavior, you can reasonably use eye-level wind speed as an approximation of mid-flame wind speed
- We use a table to adjust between 20-foot and midflame/eye-level

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### Overstory sheltering – general guidance

Surface fuel sheltering from the wind	Wind Adjustment Factor (WAF)	Fuel Model
<b>Partially sheltered</b> <ul style="list-style-type: none"> <li>Patchy timber</li> <li>Timber at midslope or higher with wind blowing directly at the slope</li> </ul>	0.3	<ul style="list-style-type: none"> <li>All fuel models</li> </ul>
<b>Fully Sheltered</b> <ul style="list-style-type: none"> <li>Standing timber on flat or gentle slope</li> <li>Standing timber near base of mountain with steep slopes</li> </ul>	0.2	<ul style="list-style-type: none"> <li>Open stands. All fuel models</li> </ul>
	0.1	<ul style="list-style-type: none"> <li>Dense stands. All fuel models</li> </ul>

Image Source: Behave Plus help window

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### Overstory sheltering – general guidance

Surface fuel sheltering from the wind	Wind Adjustment Factor (WAF)	Fuel Model
<b>Unsheltered</b> <ul style="list-style-type: none"> <li>Surface fuels not sheltered from the wind</li> <li>No overstory</li> <li>Sparse overstory</li> <li>Timber that has lost its foliage</li> <li>Timber on high ridges where trees offer little sheltering</li> </ul>	0.5	<ul style="list-style-type: none"> <li>4, 13</li> <li>GR7, GR8, GR9</li> <li>SH4, SH5, SH7, SH8, SH9</li> </ul> <p style="text-align: center;">(depth = 0.9 ft, = 0.3 m) More than 2.7 feet</p>
	0.4	<ul style="list-style-type: none"> <li>1, 2, 3, 5, 6, 7, 10, 11, 12</li> <li>GR2, GR3, GR4, GR5, GR6</li> <li>GS1, GS2, GS3, GS4</li> <li>SH1, SH2, SH3, SH6</li> <li>TU2, TU3, TU5</li> <li>SB1, SB2, SB3, SB4</li> </ul> <p style="text-align: center;">(depth 0.9 - 2.7 ft, 0.3 - 0.8 m)</p>
	0.3	<ul style="list-style-type: none"> <li>8, 9</li> <li>GR1</li> <li>TU1, TU4</li> <li>TL1, TL2, TL3, TL4, TL5, TL6, TL7, TL8, TL9</li> </ul> <p style="text-align: center;">(depth = 2.7 ft, = 0.8 m) Less than 0.9 feet</p>

Image Source: Behave Plus help window

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